BRIEF REPORT*

Developing Entrepreneurial Learning Outcomes for Sustainable Societal Change: A Case Insight from a Danish University of Applied Sciences

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Abstract

This case insight examines how entrepreneurial learning can be meaningfully integrated into healthcare education to equip students with the competencies needed to address complex global sustainability challenges. While entrepreneurship education (EE) is increasingly promoted as a strategic response to crises such as climate change, public health emergencies, and social inequality, its implementation within professional healthcare programs in higher education remains contested and underexplored, particularly regarding student engagement and the perceived relevance of these learning formats. Drawing on a single-case study at a Danish university of applied sciences, the study examines how EE combined with problem-based learning (PBL) influences female healthcare students' entrepreneurial agency and engagement when engaged in topics such as sustainable societal change.

Using a qualitative case-study approach, the analysis explores factors that both enable and hinder students' participation in EE, with specific attention to tensions between discipline-oriented learning goals and the entrepreneurial competencies such as initiative-taking, innovation, and action orientation. The findings indicate that while EE and PBL can strengthen women's entrepreneurial agency and capacity to address sustainability challenges, misalignment between EE pedagogies and students' professional identity formation can generate resistance towards the learning formats. Key barriers include the lack of clear relevance to future healthcare roles and the limited institutional integration of EE into discipline-specific curricula.

The study contributes to EE and healthcare pedagogy by identifying critical conditions for embedding EE in applied professional programs. It highlights the importance of aligning EE with students' professional self-understanding and demonstrates how gender-sensitive, context-specific EE design can enhance engagement and societal impact. These insights offer practical guidance for HEIs seeking to position EE as a transformative educational strategy within healthcare education.

Introduction

Despite growing societal demands for innovation and action-oriented competencies, entrepreneurship education (EE) remains difficult to integrate meaningfully into health professional education, where curricula are traditionally oriented toward standardized professional skills and roles. This tension raises critical questions about students' engagement with EE and its perceived relevance for future healthcare practice, particularly among female students, who constitute a majority in many health education programs yet remain underrepresented in entrepreneurial initiatives.

Research questions

Against this backdrop, this study asks: What factors enable and hinder female health education students at a university of applied sciences from engaging in EE, given its potential relevance to their future professional careers? The question is examined through a single-case study of a university course employing design thinking and problem-based learning (PBL). While limited in scope, the case offers empirically grounded insights into pedagogical and curricular conditions that shape student engagement with EE, thereby contributing to ongoing debates on innovation-oriented education in health professional programs. The study is subsequently supported by a set of interrelated subquestions addressing the relevant aspects of pedagogy, identity formation, and curricular alignment. These consolidated subquestions guide the reader towards how the empirical analysis of the case and the discussion connect back to the study's core aims. Consequently, the study also illustrates the following: What pedagogical conditions within EE support or undermine female students' engagement in health professional programs? How does the combination of EE and PBL influence female students' entrepreneurial agency? In addition, the article discusses the challenges associated with combining EE and PBL, and whether these can explain resistance among female health education students.

This case study contributes knowledge on how universities of applied sciences can position EE as a vital and meaningful educational strategy in addressing the increasingly pervasive global challenges, including climate change, geopolitical conflicts, economic inequality, human rights violations, and public health crises. Through a single case from a Danish university of applied sciences, this study examines and discusses educational approaches to enhancing women's agency in tackling complex global sustainability challenges through EE and PBL formats, as well as the skills needed for sustainable career paths grounded in action competencies.

Theoretical framing

Higher education plays a crucial role in addressing the increasingly prominent and omnipresent global challenges. Educating young people with the necessary competencies to tackle these crises and to pursue sustainable career paths has become increasingly important in recent years. These challenges are vastly complex, encompassing issues such as climate change, geopolitical conflicts, economic inequality, human rights violations, and public health crises. EE offers an essential approach to proactively addressing these challenges. The EU has developed the GreenComp framework (Bianchi et al., 2022; Larsen, 2022) to educate future generations on environmental sustainability through four key competency areas: embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures, and acting for sustainability (Lysgaard et al., 2019). Given the persistent underrepresentation of female entrepreneurs and women in leadership positions, this case insight focuses on enhancing women's agency to address complex global sustainability challenges. Blenker et al. (2012) and Moberg (n.d.) argue that EE must be practiced according to "the individual entrepreneur's ability to disclose anomalies and disharmonies in their personal life" (p. 417). They further illustrate how opportunities unfold depending on regional differences, local heritage, and gender aspects. Interestingly, Blenker et al. (2012) emphasize that EE must consider differences in context, culture, and circumstance. Therefore, EE educators must be aware of gender differences when planning, implementing, and evaluating EE activities. In addition, Thrane et al. (2016) suggest that EE should be operationalized through a series of entrepreneurial learning elements, including identity work, the construction of innovative solutions, and prototyping. Similarly, Williams-Middleton and Donnellon (2014) urge EE educators to focus on "...the personal 'how' and 'why' for the learner" (p. 1). However, the emphasis on action-oriented teaching presents challenges in EE classrooms, often leading educators to rely on nudging strategies (Neergaard et al., 2021) or case-based learning methods (Ramsgaard & Austin, 2022). Furthermore, students engage in identity play to test and try different identity roles during EE activities (Donnellon et al., 2014; Hytti & Heinonen, 2013), which further accentuates the importance of addressing gender issues in this work (Elliott et al., 2021). Ramsgaard and Blenker (2021) advocate

that universities of applied sciences must contextualize EE approaches to the professional degree program in which the teaching occurs. This resonates well with contemporary studies on professions (Harrits, 2016; Heggen & Terrum, 2013).

The teaching format, centered on the VisionBoost, is grounded in solid academic foundations that are drawn from traditions of identity work, narrative reflection, and future-oriented learning within EE. The theories on identity work related to career transitions from Ibarra et al. (2026) define actions and reflections about these transitions as "work role transitions that entail a departure from one professional or occupational trajectory and potential entry into another" (p. 139). Therefore, the VisionBoost draws on Ibarra's concepts of identity play and the ability to "adapt to new roles by experimenting with provisional selves that serve as trials for possible but not yet fully elaborated professional identities" (Ibarra, 1999, p. 764). In addition, theories on narrative reflection (Ibarra, 2023) and future-oriented learning stress the importance of imagining alternative futures to "open up future potentialities that break away from the present" (Gümüsay & Reinecke, 2021, p. 236). Therefore, it is important to understand VisionBoost not only as a pedagogical tool but also as a theoretically informed methodological choice and approach.

We define action competence as the ability to act, initiate, and implement positive changes (Læssøe & Hansen, 2024). We posit that PBL and EE can provide valuable frameworks for students' learning. Students in the course were encouraged to actively apply theoretical and research-based knowledge to relevant issues. However, the combination of PBL teaching methods and EE has been found in other studies to present challenges, as the focus on students' interests and learning is reoriented towards an external environment to create health value (Strand et al., 2019).

Consequently, another pertinent question for this investigation is whether the challenges of combining EE with PBL can explain the students' resistance. In this context, we also consider how the instrumental approach used in professional education programs affects students' engagement and learning outcomes, as it aims to equip students with the tools needed to perform specific tasks in their profession.

Method

This study employs a single-case study methodology within the context of higher education. It examines a course undertaken by 75 Physiotherapy students, focusing on sustainable health promotion and health prevention. The course format develops action competencies through entrepreneurial processes and behaviors facilitated by EE and PBL methodologies, primarily through close collaboration with relevant external companies or organizations.

Data for the case insight were collected through in-depth classroom observations, focus group interviews, and individual VisionBoost sessions. VisionBoost is a conceptual tool designed to help students articulate their hopes and dreams for the future (Nielsen, 2024). Data from the VisionBoost sessions provided a holistic perspective on students' reflections regarding their future roles in the global workforce. Classroom observations were systematically utilized to gather additional perspectives and contextual and behavioural information through informal conversations (Blenker et al., 2014). The observations were primarily conducted by the first author, who observed the second author's teaching sessions in a role that ranged from passive to participatory, and were documented through systematic note-taking. The observations revealed limited use of the supplied team role tools and rapid completion of the contracts without in-depth discussion. An energetic but chaotic atmosphere was observed among the students as they discussed potential external collaboration partners.

Case context

The case takes place at VIA University College in Aarhus, Denmark (a University of Applied Sciences) during the fifth semester of the Bachelor's Degree Programme in Physiotherapy. It is a single-subject course for approximately 75 students, focusing on a health promotion and health prevention project designed to create health value in a specific workplace setting in close collaboration with regional stakeholders. While the course primarily served health promotion goals, entrepreneurship education principles were integrated to encourage students to identify opportunities, initiate actions, and co-create solutions with external partners.

It is crucial to articulate the analytical value of conducting a single case study. Drawing on established case study methodology, such as Flyvbjerg's (2001) discussion of information-rich and paradigmatic cases, is an important

methodological framework that enables the generation of new insights based on the specific, in-depth, and contextually grounded case. Therefore, despite being a single-case study, the presented case is analytically insightful rather than representative (as discussed by Flyvbjerg (2001, 2012)).

Participants and recruitment

At the beginning of the study, students were randomly assigned to project groups. The groups, comprising predominantly female participants, were invited to participate in the case study via email. Three students expressed interest and were encouraged to engage other female peers. This resulted in four additional participants. As a fully random selection was not possible, the study relies on voluntary participation by female students. Consequently, the case study focuses on the experiences of seven female students who completed a 10-week course (10 ECTS) during their fifth semester at VIA University College in Denmark. These seven female students, aged 22-27, are all enrolled in the Physiotherapy program and undertook the course alongside 68 other physiotherapy students.

The course's primary objective is for students, in collaboration with citizens and the community, to initiate and implement interventions within the domains of health education, health promotion, and preventive measures. The course is structured around problem-based learning didactics and emphasizes developing students' action competencies through the design thinking process. Students must demonstrate entrepreneurial behaviour through the four phases of the FIRE model: Finding/ Understanding, Ideation, Realization, and Evaluation (Rohde & Boelsmand, 2016).

The course is scheduled for the beginning of the semester, beginning with a kickoff event, followed by sessions in the home class. Each home class is assigned two permanent instructors who serve as the course's supervisors, process facilitators, and examiners. Smaller teams of 3-4 students are formed within each home class using the platform clevergroups.com. Following team formation, students are guided through team-building activities and establishing contact with a project setting, which they were responsible for securing independently.

Throughout the 10-week course, students are responsible for the overall process. They are expected to initiate their intervention by the seventh project week, allowing for evaluation at the project's conclusion. During the course, students are required to participate in weekly group supervision and facilitation sessions, submit two written sub-assignments related to the process, provide feedback on other groups' projects, submit a final written report, and deliver an oral presentation at the end of the project. Additionally, students can choose instruction in various subjects and receive individualized instructor supervision. The female informants in the case were thus recruited from the same class, with no additional inclusion criteria beyond their willingness to participate and contribute time to VisionBoost (Nielsen, 2024) and focus group interviews (Malterud, 2012).

Materials

Qualitative methods were used to gain an in-depth understanding of the factors shaping female students' entrepreneurial learning journeys, including their resistance to EE. Malterud's framework for analyzing qualitative data was employed for its systematic, reflective approach, which ensures critical reflection on the influence of preconceptions on the research process and outcomes (Malterud, 2017). Malterud's four-step systematic text analysis was applied. First, the material was read to gain an overall impression and identify preliminary themes. Next, meaning-bearing units were identified and organized into themes and subthemes. In the third step, these were condensed into first-person singular statements as artifacts. Finally, the condensed units were recontextualized in an analytical summary presented in the results section.

Empirical data were collected through classroom observations, individual VisionBoost sessions, and focus group interviews. VisionBoost is a conceptual tool designed to help students articulate their hopes and dreams for the future. The VisionBoost model is a structured, three-step reflective process designed to help students articulate and explore their future aspirations, both professionally and personally. The model aims to foster motivation, agency, and a sense of direction by connecting students' dreams with their current educational context and lived experiences.

Step 1: Exploring Dreams and Visions

The students share their dreams and visions for the future. These may range from highly concrete to abstract or imaginative ideas, and all contributions are considered valid. The emphasis is on creating an open space for professional and personal perspectives.

Step 2: Mapping Knowledge, Experiences, and Interests

The student articulates their existing knowledge, experiences, and interests. This may include extracurricular activities, part-time employment, volunteer work, formal education or training courses, travel experiences, and participation in folk high schools or boarding schools. Additionally, the student reflects on their competencies and how these influence their dreams.

Step 3: Identifying the Next Best Steps

This step focuses on translating the student's dreams and visions into small, realistic actions, with the dreams guiding the direction. The emphasis is on identifying relevant activities within the specific study program and on campus, as well as on the student's personal life and after graduation.

The VisionBoost framework is structured as a conversation between a student and a teacher or facilitator. When possible, the session incorporates graphic facilitation, where the teacher visually captures key elements of the conversation on a whiteboard or large sheet of paper. At the end of the session, the student can take a photo of the visual summary or bring the physical drawing with them. A VisionBoost session lasts up to 1 hour and concludes with a brief evaluation. The format is also adaptable to online settings. See Figure 1.

In addition to one-on-one sessions, VisionBoost can be integrated into classroom teaching. In this context, the teacher introduces the three steps of the model while drawing or writing on the whiteboard. This is followed by a peer-to-peer activity in which students interview each other in pairs about their dreams for the future, their sense of identity, and the next steps toward realizing their aspirations.

Procedure

Data collected from the VisionBoost sessions were primarily used to provide a broader perspective on students' reflections regarding their profession. Observations were used to gain additional perspectives on the phenomenon, and the focus group interviews were supplemented with observations conducted prior to the interviews. Observations aimed to gather contextual and behavioural information that is not always accessible through verbal descriptions alone. During observations, researchers also had a unique opportunity to ask in-situ questions as part of informal conversations (Dalland & Dalland, 2024).

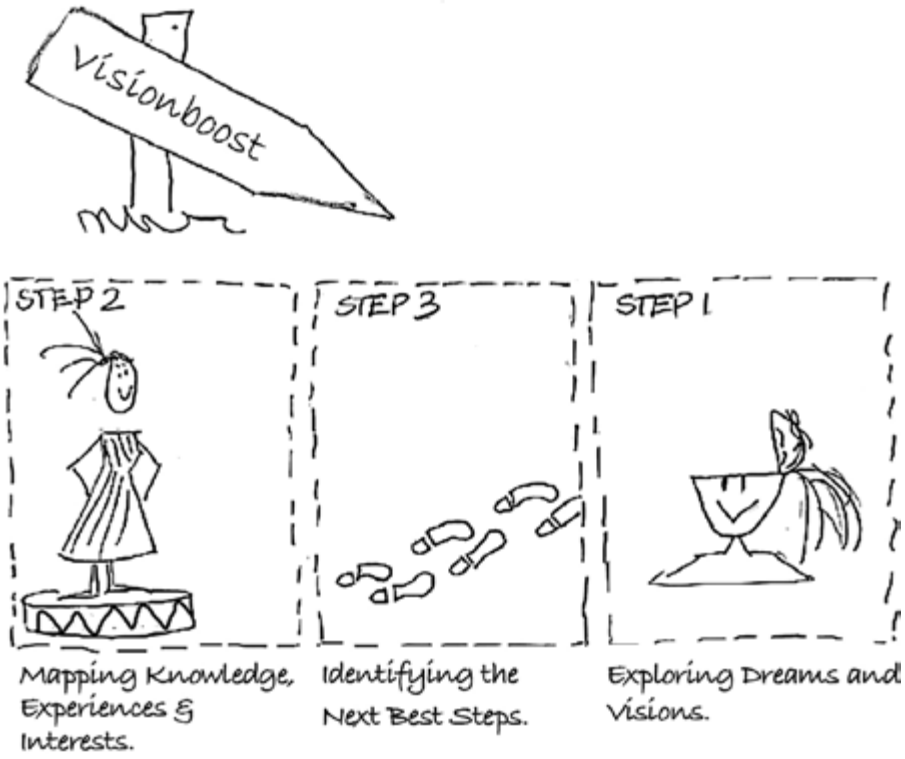

Figure 1. Visualization of VisionBoost framework

To obtain rich, in-depth insights into participants' perspectives and experiences with EE, focus group interviews were employed. This method is particularly effective for several reasons: First, the interactive dynamics among participants foster a deeper and more diverse exploration of the topic. Second, the group setting allows for the observation of social interactions and group dynamics, thereby providing additional layers of contextual information (Malterud, 2012).

Individual statements from informants were analyzed using PBL theories and within a broader organizational context, with consideration of professional identity and the Ministerial Order on the Bachelor's Degree Programme in Physiotherapy (Ministry for Higher Education and Science, 2023).

Results and Insights

Our case provides insights into the limitations of education oriented towards EE and PBL. It highlights the need for processes that prepare students to handle real-life challenges, fostering adaptability and problem-solving skills in healthcare settings. By identifying the sources of student resistance, our case study contributes to understanding how educational structures and academic foci impact student engagement and learning outcomes. The combination of PBL and EE underscores the theoretical implications of integrating different educational methodologies to enhance learning experiences.

The case data reveal a diverse range of opinions on the course's entrepreneurial learning outcomes. Some students were initially very critical of both the subject and the process but changed their minds when they realized they could make a difference by contributing to a health initiative among real people. Others were more positive from the start but became disillusioned when they felt they could not deliver sufficient quality through their project, e.g., due to recruitment difficulties. Still others were negatively affected by the project because they did not have the opportunity to work in an area that genuinely interested them.

Figure 2 illustrates how students expressed these diverse statements about the teaching program, represented by personas 1-5.

Observations from the first day of the project revealed that the process began with a 5-hour kickoff session, during which

 **Persona 1**	 **Persona 2**	 **Persona 3**	 **Persona 4**	 **Persona 5**
"Nice to get something started and apply ideas to real people."	"I am positive about the program because I see opportunities in working as a consultant moving forward."	"What the hell can I teach others? I'm not qualified to be a consultant; I don't know how to set up an office." "However, in the end, there was a sense of 'we can actually do something, they (external partners) were really happy, but maybe they just said that to be nice?"	"Somewhat too loose, a bit too fluffy (the project). Difficult to make sense of. The experience causes people to bring each other down (in the group)."	"I think it has been a dreadful period." "The process-oriented approach looks better on paper but is heavily influenced by time pressure?" "It's not a passion project. During the evaluation, I couldn't care less whether they used the idea or not."

Figure 2. Five personas derived from interviews.

students were introduced to the project's purpose, methods, and professional strategies. Teachers stated that the kickoff was exemplary for the first phase, which focused on finding a relevant external organization for collaboration. The didactic focus deliberately relied on PBL and EE as the course's working methods and frameworks. Students in the case found the initial phase critical for the project's progress, as it did not allow time to reflect on the choice of an external partner. They perceived this as a stress factor, leading to uncertainty about their progress. They noted that their choice of an external organization was influenced by who they could meet within the timeframe, rather than their genuine interest. This tight schedule was dictated by the design thinking process, with deadlines set by the course timeframe. Interestingly, students' experience of time pressure contradicted general observations of their actions and efforts in the project, which initially showed a waiting stance and underutilization of available time.

Students collectively emphasized the importance of the group as a work community and the need to focus on entrepreneurial competencies and training abilities to act, initiate, and implement positive changes. These insights informed our interest in addressing PBL and EE, prompting discussion about how, what, and when resistance to this type of course arose.

The purpose of the Bachelor's Degree Programme in Physiotherapy is to qualify graduates to independently manage, provide, and coordinate patient- and citizen-centred care. However, in the health promotion and disease prevention project, students must engage with groups of people in workplace settings and develop ideas for health promotion and prevention initiatives. This significantly differs from training and treating an individual patient or citizen. Additionally, students encounter a process-oriented teaching approach that emphasizes innovation, initiation, and action (Bager & Nielsen, 2008), which also deviates from typical everyday practice in physiotherapy.

An analysis of the Bachelor's Degree Programme reveals only a few learning objectives (knowledge, skills, and competencies) related to broader societal contexts and entrepreneurship. For instance, only one of fourteen learning objectives concerning knowledge addresses understanding the health sector as part of health policy and economic structures, and another focuses on understanding innovation as a method of changing practice. Specifically, the case illustrates how a series of entrepreneurial learning elements engage the students in processes of identity work (through the VisionBoost), the construction of innovative solutions (through projects), and prototyping (through action-based activities), which is much in line with the suggestions from Thrane et al. (2016). Furthermore, Læssøe and Hansen (2024), in their book Competent Action, argue that higher education institutions should possess a certain degree of autonomy and function as learning spaces for the benefit of society. The authors find this incompatible with current educational policy, characterized by detailed control and utilitarian thinking. Such detailed control is also evident in the Bachelor's Degree Programme in Physiotherapy, which has only a few learning objectives related to innovation and entrepreneurship. This narrow focus carries a significant risk of negatively impacting the health sector and hindering its ability to address current challenges by educating healthcare professionals who lack:

- An understanding of the patient from a broader perspective.
- Understanding of social structures and economic factors.
- Understanding of health policy, legislation, and the structure of the healthcare system.
- Insight into cultural differences and health perceptions.

In summary, Figure 3 presents the key aspects of resistance to education that are particularly relevant to Physiotherapy students. Upon examining the program structure and speaking with the teachers, we identified a strong desire to give students significant freedom, including the opportunity to choose their real-life professional partners and collaborate to address challenges. However, most students had an entirely different experience: following a strict schedule inspired by design thinking, they felt compelled to adhere to the four steps at designated times.

The PBL teaching method typically focuses on students' interests and learning. However, when PBL is combined with EE—which involves new, value-creating collaboration with the external environment—students are reoriented toward the external environment rather than their individual interests. This reorientation may help explain students' perceived lack of an overview of the process and their feeling that they lack the necessary competencies to contribute effectively. Consequently, the consultant role can appear unsettling and anxiety-provoking, as several students also indicated

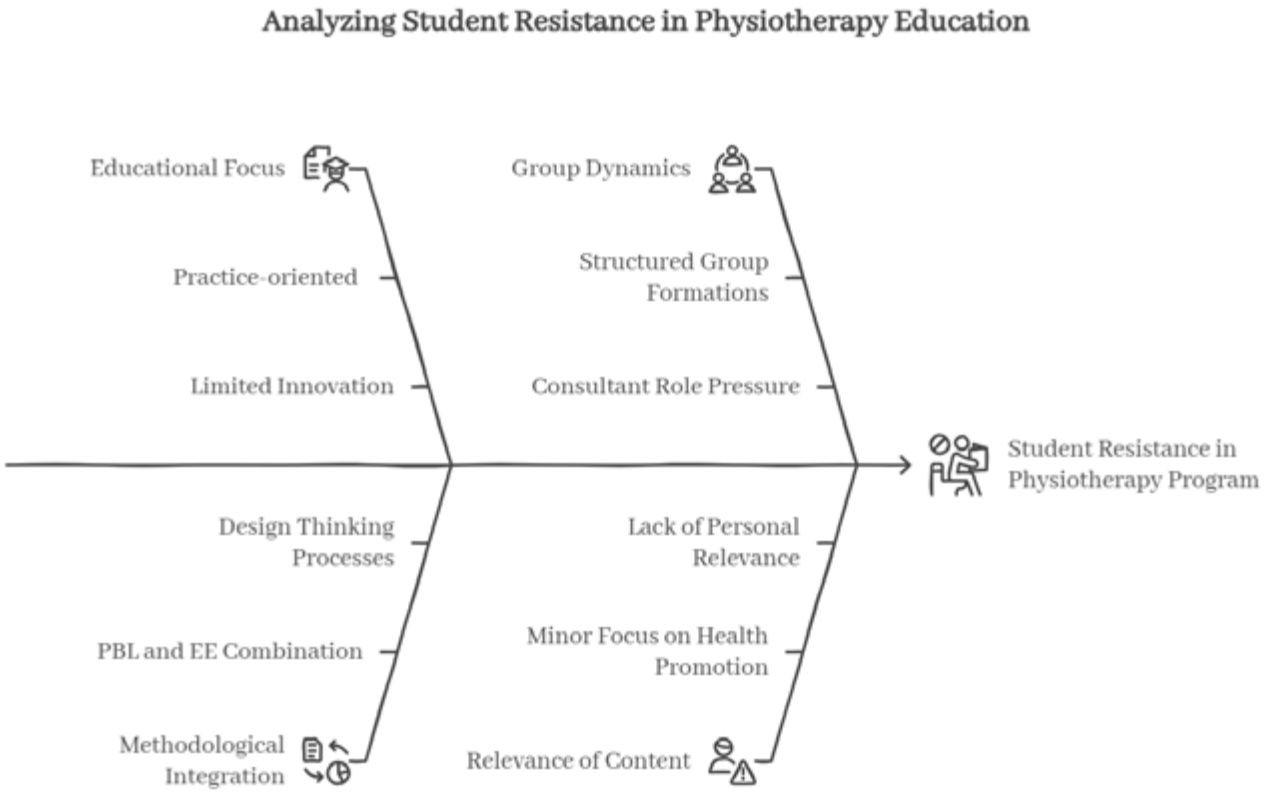

Figure 3. Analyzing Student Resistance in Physiotherapy Education

during the interviews. In summary, the analysis suggests that combining EE and PBL results in a lack of personal relevance for students. Several plausible explanations appear in the material: It is evident that the resistance arises from the project not being sufficiently connected to healthcare practice, along with the limited curricular scaffolding in earlier semesters.

Discussion and Impact

Group processes are essential in PBL because they support a constructivist learning approach that values dialogue. The group serves as a supportive and secure base for individual learning, providing students with valuable experiences in small team collaboration (Strand et al., 2019). In this course, students were placed into groups over which they had minimal influence, and they were required to work within the domain of health promotion and disease prevention. These two crucial factors are considered to have a significant correlation with the female students' work effort and the extent to which they find the project meaningful, feel supported, and are encouraged to dedicate themselves to the process, be curious, and invest the time that the project truly requires (Strand et al., 2019).

Our case insight provides a valuable illustration of the challenges of implementing EE in course designs. It highlights the need to design courses that better prepare students at universities of applied sciences to handle real-life challenges of working with external stakeholders, fostering adaptability and problem-solving skills in healthcare settings. By identifying the motivations for entrepreneurial learning outcomes and the sources of student resistance, our case insight contributes to a more nuanced understanding of how the design of action-based courses and academic foci affect student engagement and entrepreneurial learning outcomes. Furthermore, combining PBL and EE underscores the theoretical implications of integrating different educational methodologies to enhance learning experiences.

Limitations

As this study is based on a single university of applied sciences, its findings are context-specific and may not be directly generalized to other HEIs or student groups. Instead, our findings should be viewed as analytical insights that may inform understanding in similar contexts. Furthermore, the findings are shaped by the specific institutional and disciplinary context in which the study was conducted and,

consequently, are limited to female students in health education; perspectives of other groups (male students, other non-business fields, other levels of education) are excluded. Additionally, a limitation is that the small sample size for the case insight constrains the ability to claim broader trends.

Conclusion

The Bachelor's Degree Programme in Physiotherapy in Denmark is strongly oriented towards practice-based education, emphasizing patient-centred activities over broader societal contexts and entrepreneurial skills. This narrow focus, as outlined in the Ministerial Order, may leave healthcare professionals with a limited understanding of social structures, economic factors, health policy, and cultural differences. Furthermore, the limited emphasis on innovation and entrepreneurship could hinder the development of the competencies necessary to improve the healthcare sector, which is why this case insight offers a valuable discussion of the factors influencing this work. Despite the course program's stated intention to give students freedom to choose professional partners and address real-life challenges through entrepreneurial methods, the structured approach and strict adherence to design thinking processes, in this case, led to dissatisfaction and resistance among female students, informing the case insight. Resistance among students may, however, stem less from opposition to entrepreneurship as a concept and more from how entrepreneurial principles were contextualized within a healthcare program. Our study asked: What factors enable and hinder female health education students at a university of applied sciences from engaging in EE, given its potential relevance to their future professional careers? The analysis showed that combining PBL and EE can lead to student resistance, particularly when students are required to tackle challenges relevant to external collaborators but not necessarily to their individual interests. This pressure to adopt a consultant role can be confusing or unappealing, especially if the academic field does not genuinely interest them or if they feel they lack the necessary expertise. Another significant reason for student resistance is the structured group formation and the program's academic focus. Health promotion and disease prevention constitute only a minor part of the program's academic curriculum, making it difficult for some students to grasp the program's overall significance. The structured group formations often resulted in groups in which the majority struggled to understand the course's purpose, creating challenges for those who were positively inclined and eager to contribute. Figure 3 summarizes our findings on female students' resistance to the health promotion and prevention project. This study shows that female health education students' engagement in entrepreneurship education is shaped by the alignment between entrepreneurial pedagogies and their professional identity formation. Future research should examine how EE can be more structurally embedded and gender-sensitively designed within health professional curricula to reduce resistance and strengthen its relevance for healthcare practice.

Conflict of Interest

No conflicts of interest reported for this study.

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